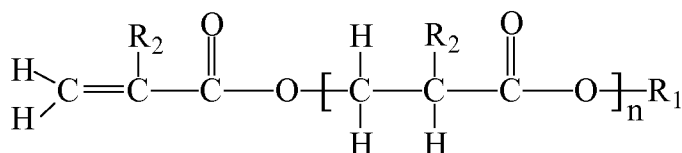


Amendments to the Claims:

1. (Previously Presented) A process for cleaving (meth)acrylic acid oligomers comprising the steps of:

providing at least one (meth)acrylic acid oligomer comprising a structure I



I

wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groups

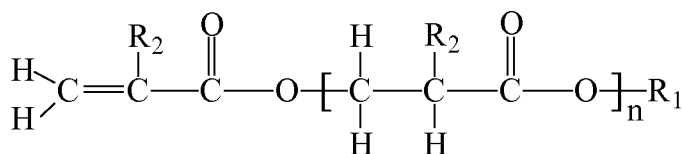
R₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200; and

heating the at least one (meth)acrylic acid oligomer to a temperature of at least 50°C at a pressure of at least 10 bar.

2. (Previously Presented) A process for cleaving (meth)acrylic acid oligomers comprising the steps of:

providing at least one (meth)acrylic acid oligomer comprising a structure I



I

wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groups

R₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200;
providing a cleaving agent comprising a structure II

R_3 -OH

or structure III

$(R_4)_2$ -N-H

wherein

R_3 is a hydrogen atom, a C_1 to C_{12} alkyl group, or a $-C_xH_{2x}$ -OH group, wherein x is a whole number within a range from 1 to 12, and

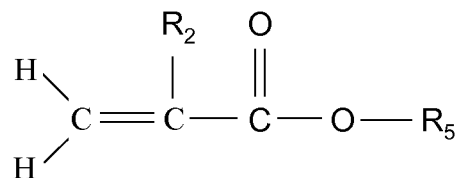
R_4 is a hydrogen atom or a C_1 to C_{12} alkyl group, with the proviso that not both R_4 groups are hydrogen atoms; and

contacting the at least one (meth)acrylic acid oligomer with the cleaving agent at a temperature of at least 50 °C and at a pressure of at least 10 bar.

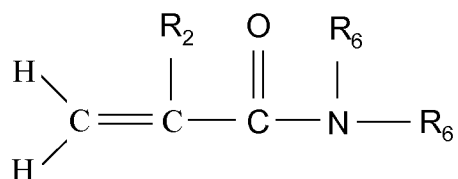
3. (Previously Presented) The process according to Claim 2, wherein the cleaving agent and the at least one (meth)acrylic acid oligomer are used in a cleaving agent : (meth)acrylic acid oligomer weight ratio within a range from 0.01 : 1 to 10 : 1.

4. (Previously Presented) The process according to Claim 2, wherein the cleaving agent comprises any one of water, ethanol, n-butanol, or a mixture of at least two of these compounds.

5. (Previously Presented) The process according to Claim 1, wherein a cleaving product comprises a compound comprising a structure IV



or structure V



wherein

- R_6 is an H atom or a $\text{C}_1 - \text{C}_{12}$ alkyl group, with the proviso that not both R_6 groups are hydrogen atoms,
- R_5 is an H atom, a $\text{C}_1 - \text{C}_{12}$ alkyl group or a $-\text{C}_x\text{H}_{2x}-\text{OH}-$ group, whereby x is a whole number within a range from 1 to 12, and
- R_2 is an H atom or a methyl group.

6. (Currently Amended) The process according to Claim 1, wherein the at least one (meth)acrylic acid oligomer comprises a composition comprising a bottom product of the distillative work-up of a (meth)acrylic acid solution in process step iii) during a process for (meth)acrylic acid synthesis comprising the steps of:

- i) catalytically oxidizing C_3 or C_4 starting compounds in a gas phase;
- ii) any one of absorbing, condensing, or absorbing and condensing a formed (meth)acrylic acid in water; and
- iii) working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation.

7. (Currently Amended) The process according to Claim 1, wherein the at least one (meth)acrylic acid oligomer comprises a composition comprising a mother liquor obtained during the purification by crystallization in process step IV) during a process for (meth)acrylic acid synthesis comprising the steps of:

- I) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- II) any one of absorbing, condensing, or absorbing and condensing formed (meth)acrylic acid in water to form an absorption product;
- III) optionally, working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation; and
- IV) purifying by crystallization the absorption product or purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation or purifying by crystallization the absorption product and purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation.

8. (Previously Presented) The process according to Claim 2, wherein the contacting of the at least one (meth)acrylic acid oligomer with the cleaving agent occurs at a temperature of at least 250°C.

9. (Previously Presented) The process according to Claim 1, further comprising providing a catalyst.

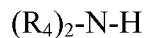
10. (Previously Presented) Using a compound comprising a structure II

R₃-OH

wherein

R₃ is a hydrogen atom, a C₁ to C₁₂ alkyl group, or a -C_xH_{2x}-OH group, wherein x is a whole number within a range from 1 to 12, or

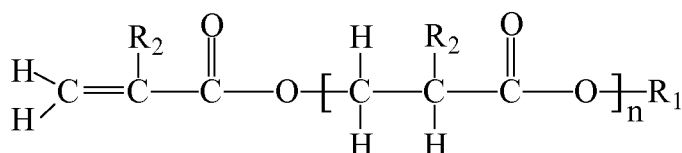
structure III



wherein

R_4 is a hydrogen atom or a C_1 to C_{12} alkyl group, with the proviso that not both R_4 groups are hydrogen atoms,

as a cleaving agent for cleaving at least one (meth)acrylic acid oligomer comprising a structure I



I

wherein

R_1 is a hydrogen atom or a C_1 to C_{10} alkyl groups

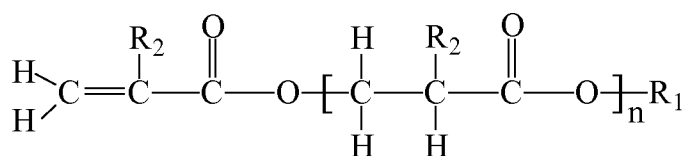
R_2 is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200,

at a temperature of at least 50 °C and at a pressure of at least 10 bar.

11. (Withdrawn) A device for production of (meth)acrylic acid comprising as components connected with each other in fluid-communicating fashion a (meth)acrylic acid synthesis unit, a quench absorber, a distillation device and/or a crystallization device, and a (meth)acrylic acid oligomer cleaving device, wherein the (meth)acrylic acid oligomer cleaving device comprises a cleaving agent reservoir, at least one first and one second conveyor unit, a mixing device, a heating device, a cleaving reactor and at least a first to fifth conduit, wherein

- (β1) a reactant pump as the first conveyor unit comprises a feed line, which communicates a composition comprising at least one (meth)acrylic acid oligomer comprising a structure I:



I

wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groups

R₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200;

- (β2) the cleaving agent reservoir communicating by a cleaving agent line as first conduit to a cleaving agent pressure pump as second conveyor unit;
- (β3) the first and the second conveyor unit communicating with the mixing device by a second and third conduit;
- (β4) the mixing device communicating with the heating device by a fourth conduit; and
- (β5) the heating device communicating with the cleaving reactor by a fifth conduit,
- wherein the oligomer cleaving device comprises a release valve, by means of which the cleaving product of the (meth)acrylic acid oligomer cleaving situated in the heating device can be expanded.

12. (Withdrawn) The device according to Claim 11, wherein the composition which is communicated in the feed line to the first conveyor unit corresponds to at least one (meth)acrylic acid oligomer comprising a composition comprising a bottom product of the distillative work-up of a (meth)acrylic acid solution in process step iii) during a process for (meth)acrylic acid synthesis comprising the steps of:

- i) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- ii) any one of absorbing, condensing, or absorbing and condensing a formed (meth)acrylic acid in water; and
- iii) working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation.

13. (Withdrawn-Currently Amended) The device according to Claim 11, wherein the composition which is communicated in the feed line to the first conveyor unit corresponds to at least one (meth)acrylic acid oligomer comprising a composition comprising a mother liquor obtained during the purification by crystallization in process step IV) during a process for (meth)acrylic acid synthesis comprising steps of:

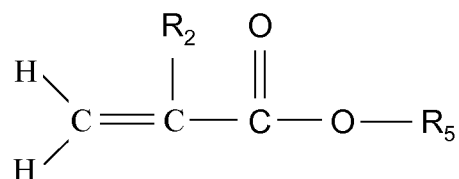
- I) catalytically oxidizing $[[C_1]]$ C₃ or C₄ starting compounds in a gas phase;
- II) any one of absorbing, condensing, or absorbing and condensing formed (meth)acrylic acid in water to form an absorption product;
- III) optionally, working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation; and
- IV) purifying by crystallization the absorption product or purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation or purifying by crystallization the absorption product and purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation.

14. (Withdrawn) Using a device according to Claim 11 for a production of (meth)acrylic acid.

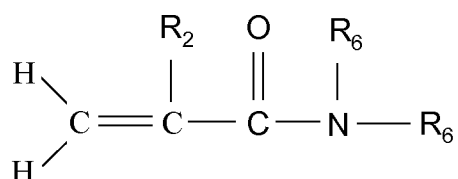
15. (Withdrawn) Using a device according to Claim 12 for a production of (meth)acrylic acid.

16. (Withdrawn) Using a device according to Claim 13 for a production of (meth)acrylic acid.

17. (Previously Presented) The process according to Claim 2, wherein a cleaving product comprises a compound comprising a structure IV



or structure V



wherein

R_6 is an H atom or a C_1 - C_{12} alkyl group, with the proviso that not both R_6 groups are hydrogen atoms,

R_5 is an H atom, a C_1 - C_{12} alkyl group or a $-\text{C}_x\text{H}_{2x}-\text{OH}-$ group, whereby x is a whole number within a range from 1 to 12, and

R_2 is an H atom or a methyl group.

18. (Previously Presented) The process according to Claim 2, wherein the at least one (meth)acrylic acid oligomer comprises a composition comprising a bottom product of the distillative work-up of a (meth)acrylic acid solution in process step iii) during a process for (meth)acrylic acid synthesis comprising the steps of:

- i) catalytically oxidizing C_3 or C_4 starting compounds in a gas phase;
- ii) any one of absorbing, condensing, or absorbing and condensing a formed (meth)acrylic acid in water; and
- iii) working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation.

19. (Currently Amended) The process according to Claim 2, wherein the at least one (meth)acrylic acid oligomer comprises a composition comprising a mother liquor obtained during the purification by crystallization in process step IV) during a process for (meth)acrylic acid synthesis comprising steps of:

- I) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- II) any one of absorbing, condensing, or absorbing and condensing formed (meth)acrylic acid in water to form an absorption product;
- III) optionally, working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation; and
- IV) purifying by crystallization the absorption product or purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation or purifying by crystallization the absorption product and purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation.

20. (Previously Presented) The process according to Claim 2, further comprising providing a catalyst.